Notes on *Cybianthus* Subgenus *Cybianthus* (Myrsinaceae) in Southeastern Brazil

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ABSTRACT. *Cybianthus rupestris*, a new species from the Planalto of Brazil, is described and illustrated, and its phylogenetic relationships are discussed. *Cybianthus glaziovii* Mez is placed in synonymy with *C. coriaceus* Martius; the former binomial is lectotypified, the latter is neotypified, and a complete description is provided for the taxon.

The neotropical genus *Cybianthus* Martius contains approximately 160 species in 10 subgenera (Pipoly, 1987). *Cybianthus* subg. *Cybianthus* contains 55 species, distributed across the Amazon Basin, the Guayana Floristic Province (sensu Maguire, 1979), the Guianas, and central and southeastern Brazil. Members of the *Grammadenia–Cybianthus–Cybianthopsis* clade (Pipoly, 1987) possess basifixed anthers with terminal pores, or with pores that open terminally, then for a short length down each side of the thecae. However, all species of subgenus *Cybianthus* may at once be recognized by the apparently epipetalous stamens, of which the tube is developmentally fused, or entirely adnate to, the corolla tube; the apically free portions of the filaments range from 1 mm to obsolete. Members of the subgenus are only locally common. My field observations indicate that the number of individuals per population is very low, usually less than 20 individuals per hectare in primary forest. I have seen precocious flowering and architectural reiteration phenomena (sensu Pipoly, 1992), along with sexual variation, in every population thus far observed. The sexual variation observed consists of monoecy, dioecy, and often polygamy in different populations of the same species. Like the majority of *Cybianthus* species, the flowers are perfect, but functionally unisexual. Historically, the group's systematic biology has been poorly understood owing to a lack of study in population dynamics. In preparation for a treatment of the Myrsinaceae for the *Flora da Serra do Cipó*, located in Minas Gerais, a remarkable new species was found from the nearby Chapada dos Veadeiros, state of Goiás, and is described herewith.

Cybianthus rupestris Pipoly, sp. nov. TYPE: Brazil. Goiás: Chapada dos Veadeiros, 14°00′S, 47°00′W, ca. 20 km W of Veadeiros [Alto Paraíso], 1,000 m, 10 Feb. 1966 (stam. fl), *H. S. Irwin et al. 12841* (holotype, UB; isotypes, LL-TEX, NY). Figure 1.

Propter ramulos dense stellato-tomentosos, laminam coriaceam revolutamque, corollae lobos suborbiculares dense prominenteque atro punctatos, *C. coriaceo* valde affinis, sed ab ea petiolis marginatis (non canaliculatis) 0.7–1 (nec 1.5–3) cm longis, perianthio membranaceo (non chartaceo), calyce inequilater (non equilater) diviso, lobis corollinis subapicale incisuris (non integerrimis) secus margines, glandulari-fimbriatos (nec glandulari-granulosos), antheris glabris (non minute glandulari-papillatis), denique stigmate capitato (non 4-lobato) praeclare distat.

Shrub to small tree to 2 m tall, stems to 3 cm diam.; branchlets terete, 3.5–5 mm diam., densely ferrugineous floccose-tomentose, the tomentum composed of stiff, arachnoid-stellate trichomes. Leaves coriaceous, the blades linear-oblanceolate to narrowly oblanceolate, (4–)4.5–9 cm long, 0.8–1.9 cm wide, apex acute, base cuneate, nitid and essentially glabrous above, pallid and densely ferrugineous floccose-tomentose below along the midrib and margin, glabrescent, midrib impressed above, prominently raised below, secondary veins 10–15 pairs, the margin tightly inrolled-revolute, entire; petioles marginate, 0.7–1 cm long, basally pulvinate, glabrous above, densely tomentose below, glabrescent. *Staminate inflorescence:* a simple, erect raceme, 5–7.5(–8) cm long, the peduncle, rachis and pedicels densely tomentose; peduncle 0.8–1 cm long; floral bracts linear-lanceolate, 1.4–1.8 mm long, apex attenuate, densely tomentose above and below, the margin erose, long glandular-ciliate; pedicels cylindrical, thin, 2.8–4.6 mm long. Flowers nodding, 2.6–2.9 mm long, dull yellow-green; calyx membranaceous, cotyliform, 1.2–1.6 mm long, the tube 0.2–0.4 mm long, unequally divided, the lobes suborbicular, 0.7–0.9 mm long, 0.7–1.1 mm wide, apically rounded, hyaline, densely and prominently black punctate-lineate, the margin erose, mostly subapically notched, densely glandular-ciliate, the cilia

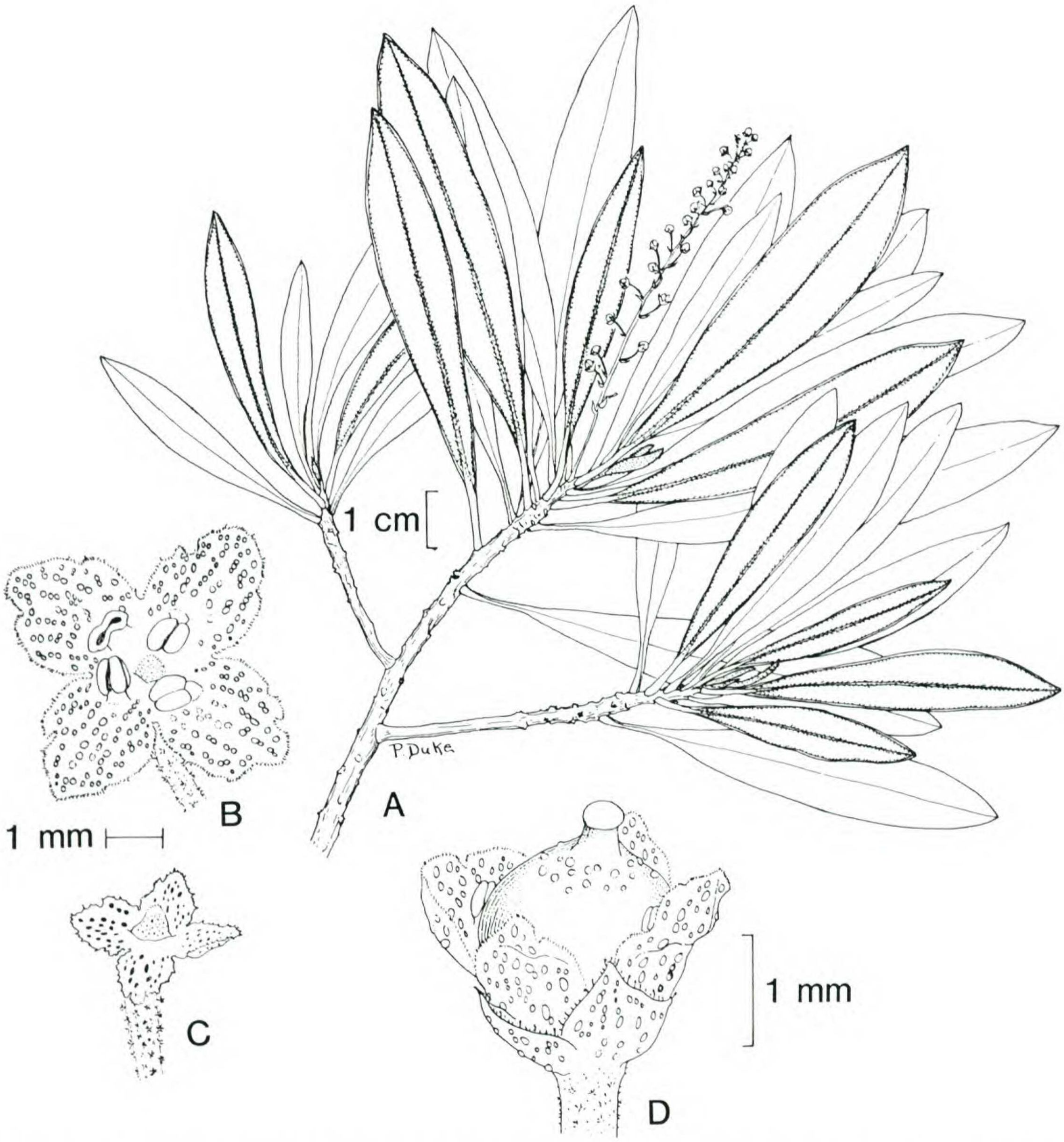

Figure 1. *Cybianthus rupestris* Pipoly. —A. Habit, showing revolute, tomentose leaves. —B. Staminate flower, showing subapically notched corolla lobes. —C. Staminate calyx and pistillode, showing erose calyx lobe margins and glandular-granulose pistillode. —D. Pistillate flower, showing discoid stigma and translucent glandular-lepidote ovary. A–C drawn from isotype. D drawn from *H. S. Irwin 32765.*

long, 3–5-celled, ferrugineous; corolla membranaceous, subrotate, 2.5–2.8 mm long, the tube 0.7–0.9 mm long, the lobes suborbicular, asymmetric, 1.8–2.2 mm long and wide, apex broadly obtuse, subapically notched, glabrous without, densely glandular-granulose throughout within, prominently black punctate medially, the margins glandular-fimbriate, the fimbria ferrugineous; stamens 1.8–2.2 mm long, the tube inconspicuous, membranaceous, adnate to corolla tube, 0.3–0.4 mm long, the filaments flat, 0.5–0.6 mm long, densely glandular-granulose, the anthers very widely ovate to suborbicular, 0.6–0.7 mm long, 0.7–0.8 mm wide, apex broadly rounded, base cordate, glabrous, the connective prominently punctate dorsally; pistillode conic, ca. 0.9 mm long, 0.4 mm diam., densely and prominently black punctate and glandular-granulose. *Pistillate inflorescence:* a simple, stiff, erect raceme, (1.5–)2–3.5(–4) cm long, the peduncle, rachis, and pedicels densely tomentose; peduncle 0.4–0.6 cm long; floral bracts

linear-lanceolate, 1–1.4 mm long, apex attenuate, densely tomentose above and below, the margin erose, long glandular-ciliate; pedicels cylindrical, thin, 1.5–1.8 mm long. Flowers nodding, 1.9–2.3 mm long, dull yellow-green; calyx membranaceous, cotyliform, 0.9–1.1 mm long, the tube 0.1–0.2 mm long, unequally divided, the lobes suborbicular to ovate, 0.7–0.9 mm long, 0.7–1.1 mm wide, apically rounded to subacute, hyaline, densely and prominently black punctate-lineate, the margin erose, mostly subapically notched, densely glandular-ciliate, the cilia long, 3–5-celled, ferrugineous; corolla membranaceous, subrotate, 1.8–2 mm long, the tube 0.7–0.9 mm long, the lobes suborbicular, asymmetric, 1.2–1.4 mm long and wide, apex broadly obtuse, subapically notched, glabrous without, densely glandular-granulose throughout within, prominently black punctate medially, the margins glandular-fimbriate, the fimbria ferrugineous; staminodes 1.3–1.5 mm long, the tube inconspicuous, membranaceous, adnate to corolla tube, 0.6–0.7 mm long, the filaments flat, 0.2–0.3 mm long, densely glandular-granulose, the anthers very widely ovate to suborbicular, 0.3–0.4 mm long and wide, apex broadly rounded, base cordate, glabrous, the connective prominently punctate dorsally; pistil obturbinate, 1.3–1.5 mm long, the ovary 0.8–0.9 mm long, 0.7–0.9 mm wide, densely and prominently black punctate and glandular-granulose, the style 0.4–0.5 mm long, the stigma capitate, flat, discoid, the placenta subglobose, apex apiculate, ovules 3, deeply imbedded in the placenta. Fruit subglobose, 5–7 mm long and in diam., exocarp thin, reddish brown when dried, inconspicuously pellucid punctate.

Distribution. Endemic to the Chapada dos Veadeiros, Goiás, Brazil, at 1,000–1,600 m elevation.

Ecology. Cybianthus rupestris grows in gallery forests along rivers, at the margin of cerrado formations. It appears to be locally common and forms a conspicuous element of the understory.

Paratypes. BRAZIL. **Goiás:** Chapada dos Veadeiros, 20 km N of Alto Paraiso, 1,250 m, 20 Mar. 1966 (pist. fl, fr) *H. S. Irwin et al. 32765* (NY, UB), *32765A* (MO, NY, UB); ca. 1,600 m, 6 Mar. 1973 (fr), *W. R. Anderson 6501* (IAN, NY, UB).

Cybianthus rupestris is most closely related to the vicariant *C. coriaceus* Martius, but is easily recognized by its shorter, marginate petioles, unequally divided calyx, subapically notched corolla lobes with glandular-fimbriate margins, glabrous anthers, and capitate, discoid stigma.

Upon study of *Cybianthus glaziovii* Mez, as the closest congener of *C. rupestris*, it became apparent that *C. coriaceus* is the earliest name for the taxon. Mez (1902) separated the two species based on an overlapping character state of acutish to acuminate vs. acute or obscurely acuminate leaf apex, and the prominence of the secondary venation below. However, I have examined all material seen by Mez, except the holotype of *C. coriaceus* and can find no differences. Because the holotype of *C. coriaceus* has been lost, and no other element was mentioned in the protologue, a neotype is proposed for *C. coriaceus*. *Cybianthus glaziovii* is lectotypified. A complete description, not previously available, is provided below.

Cybianthus coriaceus Martius, Flora (Beibl.) 2(2): 19. 1841. TYPES: Brazil. San Sebastian [Rio de Janeiro]: *C. Martius s.n.* (holotype, M lost). NEOTYPE: Brazil. Rio de Janeiro: Rio de Janeiro, summit, Morro do Carangola, 22 Oct. 1882 (stam. fl), *A. Glaziou 14048* (neotype, here designated, P; isoneotypes, BR, C, G, K, RB).

Cybianthus glaziovii Mez in Engler, Pflanzenr. IV. 236 (9): 227. 1902, syn. nov. TYPE: Brazil. Rio de Janeiro: Serra dos Orgãos, 12 Aug. 1888 (stam. fl), *A. Glaziou 17121* (lectotype, here designated, C; isolectotypes, K, P, RB).

Shrub or small tree to 4 m tall; branchlets angulate, 3.5–5 mm diam., densely ferrugineous furfuraceous stellate-tomentose. Leaves coriaceous, the blades elliptic to oblanceolate, (3–)6–8(–11.5) cm long, (1.5–)2–3.5 cm wide, apex acute to acuminate, submucronate, base cuneate, drying grayish, ferrugineous furfuraceous stellate-tomentose, glabrescent, and scrobiculate above, densely stellate-tomentose below, the tomentum persistent on the midrib and near margin, midrib impressed above, prominently raised below, secondary veins 10–15 pairs, the margin opaque, highly revolute, entire; petioles canaliculate, (1.5–)2–2.5(–3) cm long, not pulvinate, densely tomentose, glabrescent. *Staminate inflorescence:* a simple, erect raceme, (3–)5–8(–11) cm long, the peduncle, rachis, and pedicels densely tomentose; peduncle 1–1.5 cm long; floral bracts linear, 1.7–2 mm long, 0.2–0.3 mm wide, apex attenuate, densely tomentose above and below, the margin irregular, somewhat erose, glabrous; pedicels cylindrical, thin, 4–5 mm long. Flowers nodding, 2.4–2.9 mm long, translucent green; calyx chartaceous, cotyliform, 1.4–1.6 mm long, the tube 0.2–0.3 mm long, equally divided, the lobes ovate-triangular, 1.1–1.2 mm long, 0.7–0.8 mm wide, apex acute, densely and prominently black punctate, the margin hyaline, erose, densely glandular-ciliate;

corolla chartaceous, subrotate, 2.3–2.8 mm long, the tube 0.5–0.8 mm long, the lobes suborbicular, symmetric, 1.8–2.1 mm long, 1.2–1.5 mm wide, apex rounded, densely black punctate, glabrous without, densely glandular-granulose throughout within, the margin entire, glandular-granulose; stamens 1.3–1.5 mm long, the tube inconspicuous, 0.5–0.8 mm long, the filaments flat, 0.4–0.5 mm long, proximally recurved, glabrous, the anthers suborbicular, 0.5–0.6 mm long and wide, apex obtuse, base rounded, densely and minutely rufous glandular-granulose dorsally, the connective prominently black punctate dorsally; pistillode subcylindrical, somewhat tapered apically, 0.7–1 mm long, 0.5–0.6 mm diam., the stigma truncate, hollow, densely glandular-papillate. *Pistillate inflorescence:* a simple, erect raceme, 3.5–5 cm long, the peduncle, rachis, and pedicels densely tomentose; peduncle 0.4–0.7 cm long; floral bracts linear, 1.4–1.8 mm long, 0.2–0.3 mm wide, apex attenuate, densely tomentose above and below, the margin irregular, somewhat erose, glabrous; pedicels cylindrical, thin, 1.6–2 mm long. Flowers nodding, 2.6–2.9 mm long, translucent green; calyx chartaceous, cotyliform, 1.1–1.3 mm long, the tube 0.2–0.3 mm long, equally divided, the lobes deltate to very widely ovate, 0.9–1 mm long, 1–1.1 mm wide, apex acute, densely and prominently black punctate, the margin hyaline, erose, densely glandular-ciliate; corolla chartaceous, subrotate, 2.5–2.8 mm long, the tube 0.6–0.8 mm long, the lobes suborbicular, symmetric, 1.8–2 mm long, 2–2.2 mm wide, apex rounded, densely black punctate, glabrous without, densely glandular-granulose throughout within, the margin entire, glandular-granulose; staminodes 1.2–1.5 mm long, the tube inconspicuous, 0.6–0.8 mm long, the filaments flat, 0.2–0.3 mm long, proximally recurved, glabrous, the anthers suborbicular, 0.5–0.6 mm long and wide, apex obtuse, base rounded, densely and minutely rufous glandular-granulose dorsally, the connective prominently black punctate dorsally; pistil cylindrical, 1.6–1.8 mm long, 1–1.2 mm diam., the ovary densely translucent glandular-lepidote, gradually tapered to the 4-lobed stigma, the placenta deeply cupuliform, the ovules 3, deeply buried in the placenta. Fruit subglobose, 4–5 mm long and in diam., exocarp thin, inconspicuously pellucid punctate.

Distribution. Southeastern Brazil, in the states of Minas Gerais and Rio de Janeiro.

Representative specimens examined. BRAZIL. **Minas Gerais:** Ouro Preto, near Camasinhos, 6 June 1905 (pist. fl), *L. Damay 971* (G-BOIS, G-DC); Serra do Ouro Preto, Apr. 1892 (fr), *E. Ule 2629* (B destroyed, F, HBG). **Rio de Janeiro:** Tijuca, 22 July 1864 (stam. fl), *A. Glaziou 895* (BR, C, P—2 sheets); Serra dos Orgãos, 12 Aug. 1888 (pist. fl, fr), *A. Glaziou 17120* (P).

Cybianthus coriaceus is known only from historical collections and may be extinct or exceedingly rare. It may be immediately separated from *C. rupestris* by the canaliculate petioles, chartaceous perianth, and minutely glandular-papillate anthers.

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